CLAIMS

What is claimed is:

1. An apparatus for holding a medical sensor relative to a patient appendage, comprising:

first and second members in an opposing and hinged relationship, said first and second members being selectively movable between an open position and a closed position;

an alignment means associated with one of said first and second members for positioning a medical sensor relative to one of said first and second members; and

a resilient member having a first portion interconnected to said first member and a second portion interconnected to said second member, wherein said resilient member is in a substantially non-biased state when said first and second members are in said open and closed positions and wherein said resilient member resists movement of said first and second members between said open and closed position.

2. The apparatus as recited in Claim 1, further comprising:

a hinge member interconnecting said first and second members.

3. The apparatus as recited in Claim 2, wherein said hinge member and said first and second members are an integrally defined one-piece unit.

4. The apparatus as recited in Claim 2, wherein said hinge member, said first and second members, and said resilient member are an integrally defined one-piece unit.

5. The apparatus as recited in Claim 2, wherein said hinge member defines a hinge axis extending substantially parallel to a longitudinal center axis of said sensor holder.

6. The apparatus as recited in Claim 5, wherein said hinge axis is substantially parallel to a direction of patient appendage insertion between first and second members.

7. The apparatus as recited in Claim 1, wherein at least one of said first and second members is configured to define a concave surface for receiving a patient appendage.

8. The apparatus as recited in Claim 7, wherein said first and second members are configured to receive an end portion of a patient appendage.

9. The apparatus as recited in Claim 7, wherein said concave surface has a center axis extending substantially parallel to a hinge axis interconnecting said first and second members.

10. The apparatus as recited in Claim 9, wherein said first and second members are configured to substantially surround a middle portion of a patient appendage.

11. The apparatus as recited in Claim 1, wherein at least one of said first and second members further comprises:

a cushion interconnected to a patient appendage interface surface.

12. The apparatus as recited in Claim 11, wherein said alignment means comprises: a recess at least partially formed within said cushion for receiving at least a portion of a medical sensor.

13. The apparatus as recited in Claim 12, wherein a depth of said recess is substantially equal to the thickness of said sensor.

14. The apparatus as recited in Claim 1, wherein said alignment means comprise at least one of:

a projection on a patient engaging surface of one of said first and second members, said projection for engaging a medical sensor; and

a recess on a patient engaging surface of one of said first and second members, said recess sized to receive at least a portion of a medical sensor.

15. The apparatus as recited in Claim 1, wherein said alignment means comprises an aperture extending through one of said first and second members, said aperture allowing access between first and second members when said first and second members are in said closed position.

16. The apparatus as recited in Claim 1, wherein said resilient member comprises a semi-rigid member.

17. The apparatus as recited in Claim 16, wherein said semi-rigid resilient member is hingedly interconnected to said first and second members.

18. The apparatus as recited in Claim 1, further comprising at least one of:

a light emitter mounted to one of said first and second members for emitting light; and

a light detector mounted to one of said first and second members for detecting light and providing a signal indicative of said detected light.

19. The apparatus as recited in Claim 18, wherein at least one of said light emitter and said light detector is disposed between said first and second members when said first and second members are in said closed position.

20. A medical sensor holder for holding a medical sensor relative to a patient's appendage, comprising:

first and second appendage engaging members in an opposing relationship; said members being selectively movable between open and closed positions; and

an alignment means associated with one of said first and second members for positioning a medical sensor relative to one of said first and second members; and

a hinge member interconnecting said first and second members, wherein first and second portions of said hinge member are in tension and compression, respectively, in said open position and in compression and tension in said closed position, respectively;

wherein said first and second members and said hinge member are an integrally defined one-piece unit.

21. The sensor holder of Claim 20, wherein said integrally defined one-piece unit comprises a polymer material.

22. The sensor holder of Claim 21, wherein said integrally defined one-piece unit is of molded construction.

23. The sensor holder of Claim 21, wherein said polymer material is selected from a group consisting of:

polypropylenes;

polyethylenes; and

nylons.

24. The sensor holder of Claim 20, further comprising:

a resilient member having a first portion interconnected to said first member and a second portion interconnected to said second member for providing a resilient force to maintain said first and second members in one of said open and closed positions.

25. The sensor holder as recited in Claim 24, wherein said resilient member is integrally defined with said first and second members and said hinge member.

26. The sensor holder as recited in Claim 20, wherein said hinge member defines a hinge axis extending substantially parallel to a longitudinal center axis of said sensor holder.

27. The sensor holder as recited in Claim 26, wherein said hinge axis is substantially parallel to a direction of patient appendage insertion between said first and second members.

28. The sensor holder as recited in Claim 20, wherein at least one of said first and second members is configured to define a concave surface for receiving a patient appendage.

29. The sensor holder as recited in Claim 28, wherein said first and second members are configured to substantially surround a portion of a patient appendage in said closed position.

30. The sensor holder as recited in Claim 29, wherein said first and second members are configured to substantially surround a middle portion of a patient appendage in said closed position.

31. The sensor holder as recited in Claim 20, wherein said resilient member is in a substantially non-biased state when said first and second members are in said closed position.

32. The sensor holder as recited in Claim 31, wherein said resilient member provides a resilient resistance force for opposing movement from said closed position to said open position.

33. A medical sensor holder for holding a medical sensor relative to a patient appendage, comprising:

first and second members in an opposing relationship to which a medical sensor may be selectively connected;

a hinge member interconnecting said first and second members and defining a hinge axis, said hinge axis being substantially parallel to a direction of patient appendage insertion between said first and second members;

wherein said first and second members are configured to engage a middle portion of a patient appendage in said closed position.

34. The sensor holder as recited in Claim 33, wherein said first and second members are configured to, in combination, substantially surround a middle portion of a patient appendage in said closed position.

35. The sensor holder as recited in Claim 33, wherein said first and second members and said hinge member are an integrally defined one-piece unit.

36. The sensor holder as recited in Claim 33, further comprising:

a resilient member having a first portion interconnected to said first member and a second portion interconnected to said second member for maintaining said first and second members in one of an open position and a closed position relative to one another.

37. The sensor holder as recited in Claim 36, wherein said first and second members, said hinge member, and said resilient member are an integrally defined one-piece unit.

38. The sensor holder as recited in Claim 36, wherein said resilient member is in a substantially non-biased state when first and second members are in said closed position.

39. The sensor holder as recited in Claim 38, wherein said resilient member provides a resilient force to oppose movement from said closed position to said open position.

40. The apparatus as recited in Claim 33, further comprising at least one of:

a light emitter mounted to one of said first and second members for emitting light; and

a light detector mounted to one of said first and second members for detecting light and providing a signal indicative of said detected light.

41. A method for holding a sensor relative to a patient appendage, comprising:

first biasing first and second interconnected members about a hinge axis to overcome a resilient resistive force and dispose said members from a closed position into an open position;

engaging a medical sensor with one of said first and second members;

disposing a patient appendage relative to at least one of said first and second members; and

second biasing said first and second members about said hinge axis to overcome said resilient resistive force in order to dispose said members form said open position to said closed position, wherein said appendage is disposed between said first and second members and said medical sensor is held relative to said appendage.

42. The method of Claim 41, wherein disposing said appendage step comprises disposing said appendage relative to one of said first and second members wherein said appendage is substantially parallel with said hinge axis.

43. The method of Claim 41, wherein disposing said appendage step comprises disposing a middle portion of said appendage relative to said first and second members.

44. The method of Claim 41, wherein said first and second biasing steps comprise biasing a resilient member from a non-biased condition to a biased condition to allow said first and second members to move into said open and closed positions, respectively.

45. The method of Claim 44, wherein said resilient member is in a substantially non-biased condition when said first and second members are in said open and closed positions.

46. The method of Claim 41, wherein moving between said open and closed positions flexes a hinge member interconnecting said first and second members.

47. The method of Claim 46 wherein opposing surfaces of said hinge member are in tension and compression, respectively, in said open position and said opposing surfaces are in compression and tension, respectively, in said closed position.